**DNA Extraction Lab**

What You Need for Your Table:

1. Beaker
2. ½ banana in Ziploc bag
3. Cup of rubbing alcohol
4. Spoon
5. Cup of Soap
6. Packet of salt
7. Cup of warm water
8. 1 toothpick
9. Place the banana inside the Ziploc bag and seal it.
10. Take your fingers and GENTLY mash the banana for 1 minute………until it is mush.
11. Open the Ziploc bag and add the packet of salt. The salt will help the DNA stay together during the mashing process.
12. Cut the corner of the Ziploc bag.
13. Squeeze the banana into the clear cup.
14. Cover the banana with warm water and mix really well with a spoon.
15. Add the liquid soap and GENTLY stir the mixture.   
     -- You should try not to create bubbles when stirring.   
     -- The soap helps to break-down cell membranes to release the DNA.
16. Carefully pour the cold rubbing alcohol down the side of the glass stopping near the top.
17. Wait for 5 minutes to allow the DNA to separate from the solution.  
    -- Write down your observations.
18. Use the toothpicks to extract the DNA that floats to the surface. It will be long and stringy.

The soap helps to dissolve the phospholipid bilayers of the cell membrane and organelles. The salt is used to break up protein chains that bind around the nucleic acids. DNA is not soluble in ethanol. The colder the ethanol, the less soluble the DNA will be in it. Thus make sure to keep the ethanol in the freezer or on ice

**Background**: The long, thick fibers of DNA store the information for the functioning of the chemistry of life. DNA is present in every cell of plants and animals. The DNA found in banana cells can be extracted using common everyday materials. We will use an extraction buffer containing salt to break up protein chains that bind around the nucleic acids and dish soap to dissolve the lipid (fat) part of the banana cell wall and nuclear membrane. This extraction buffer will help provide us access to the DNA inside the cells.

**Pre-lab questions:**  
1. What do you think the DNA will look like?

2. Where is DNA found?

**Conclusions and Analysis**

2. What did the DNA look like? Describe it in words.

3. Compare what you know about the chemical structure of DNA to what you observed today.

3. Explain what happened in the final step, when you added alcohol to your banana extract.

4. A person cannot see a single cotton thread 100 feet (33 yards on a football field) away. If you wound thousands of threads together into a rope, it would be visible much further away. This statement can be used to explain the DNA that you observed today how?

5. Why is it important for scientists to be able to remove DNA from an organism? List two reasons.

6. Is there DNA in your food? \_\_\_\_\_\_\_\_ After doing this lab, how do you know?